



## ecology and environment, inc.

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International Specialists in the Environment

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January 23, 1987

Mr. Jeff Larson  
Division of Land Pollution Control  
Illinois Environmental Protection Agency  
2200 Churchill Road  
P. O. Box 19276  
Springfield, IL 62794-9276

Dear Jeff:

Ecology and Environment, Inc. (E & E) thought it important and appropriate to give you early notice that levels of contaminants being found at one of the sites included in the Sauget study are among the highest ever encountered in the thousands of sites our company has investigated. Surface soil samples taken from Site G contained pentachlorophenol (PCP) at a concentration as high as 0.14 percent of the total medium. Nine surface soil samples contained PCBs at concentrations ranging as high as 7.4 percent. Three surface soil samples from Site G show octachlorodibenzo-dioxin present in concentrations up to 130 mg/kg.

We are presenting this information because the levels are so high. We are also presenting it because it may be important to consider this site as an immediate threat or consider it for a public health advisory. Either way, the site will come to the attention of the USEPA and may trigger action on their part.

We thought it best to apprise you of this situation immediately and not wait for the formal report. Specific locations and concentrations will be included in the report, however if you wish to discuss these results or implications now, please contact us at (312) 663-9415.

Sincerely,

Michael Miller, P.E.  
Project Manager

MM:mh/x

cc: R. Van Somer  
W. Goode

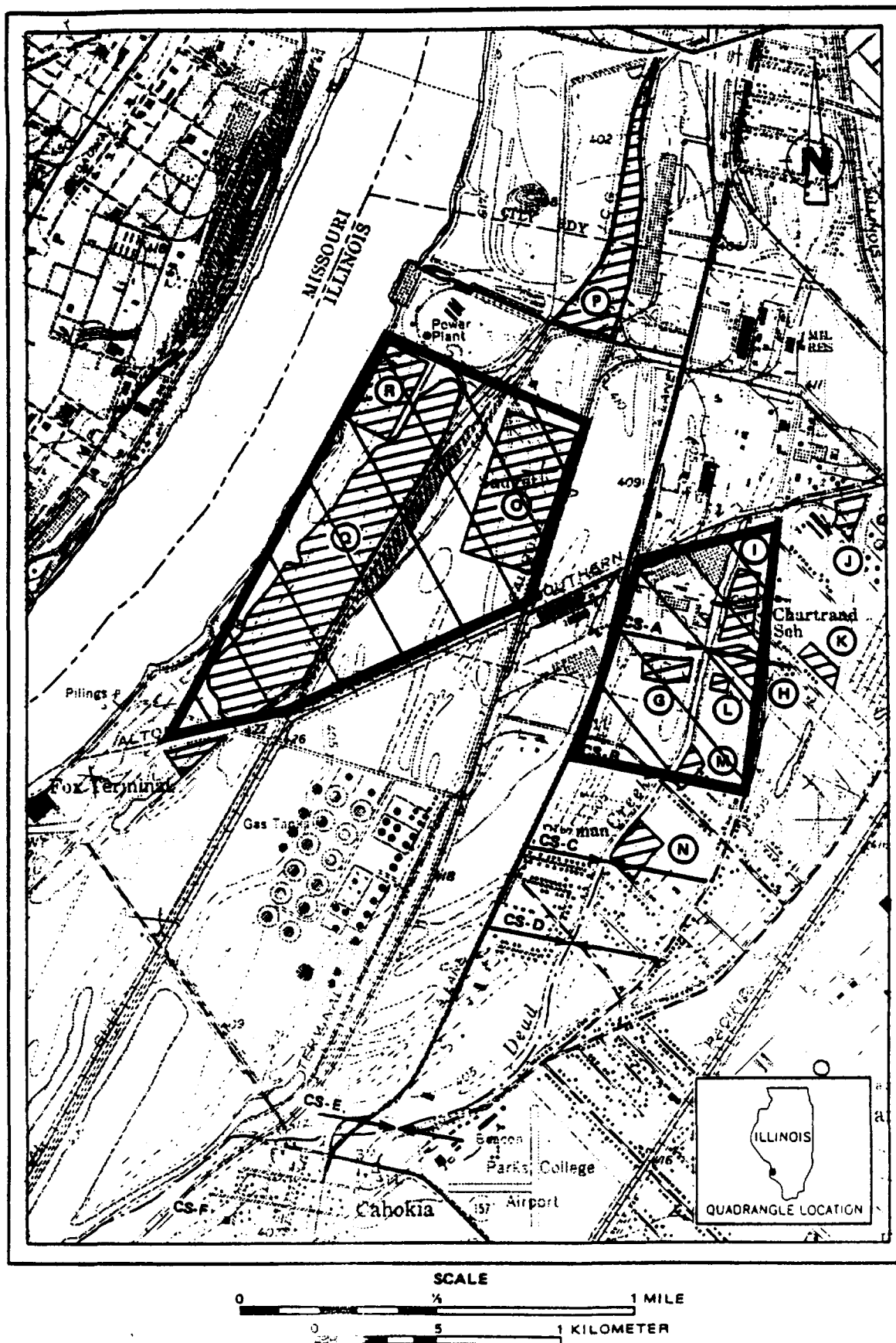


Figure 3-1 PROPOSED PROJECT AREAS FOR HRS SCORING

## **SITE G. ABANDONED LANDFILL**

### **Site Description**

Site G is a former subsurface/surface disposal area which occupies approximately 4.5 acres in Sauget, Illinois. The site is bordered on the north by Queeny Avenue; on the east by Dead Creek; on the south by a cultivated field; and on the west by Wiese Engineering Company property.

The surface of Site G is littered with demolition debris and metal wastes. Several small pits have been observed in the northeast and east-central portions of the site. Oily and tar-like wastes, along with scattered corroded drums, are found in these areas. Additionally, 20-30 deteriorated drums are scattered along a ridge running east-west, near the southern perimeter of the site. The western portion of Site G is marked by a mounded area with several corroded drums protruding at the surface. A large depression is found immediately south of the mounded area. This depression receives surface runoff from a sizable area within the site. Also, exposed debris is present over most of the site. In areas where wastes are not exposed, flyash and cinder material has been used as cover.

### **Site History and Previous Investigations**

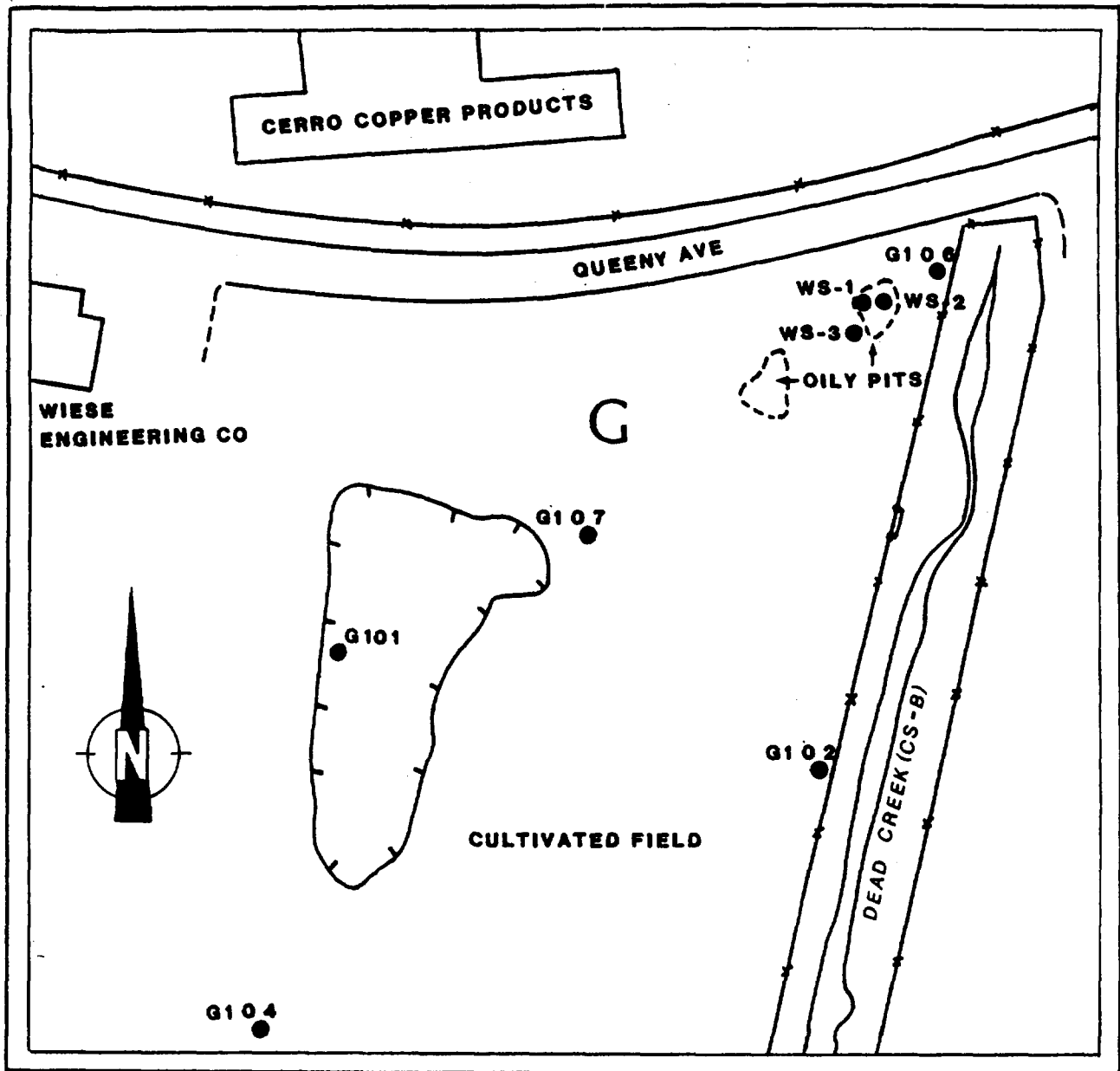
Examination of historical aerial photographs indicates excavation at Site G began sometime prior to 1950 and disposal operations were initiated shortly thereafter. No information is available concerning owners or operators for Site G at the time disposal was occurring. The photographs suggest disposal activities at the site continued until the early 1970s. Presently, Site G is inactive, although recent observations suggest that random dumping of various non-chemical wastes continues.

Site G was previously studied by the Illinois EPA in 1980 and 1981 as

part of an area-wide study to determine the source of contamination found in Dead Creek.

The results of this study were reported in the Preliminary Hydrogeological Investigation in the Northern Portion of Dead Creek and Vicinity in 1980-1981 (St. John Report). Locations of samples collected to date in the vicinity of Site G are shown on Figure G-1. The IEPA study completed in 1981 included collecting samples from subsurface soils and groundwater at Site G, and collecting surface water and sediment samples from Dead Creek immediately east of the site. Monitoring well G106 was installed in the northeast corner of the site, and well G107 is located approximately 50 feet south of Site G in a surface depression. In addition, wells G101 and G104 were installed southwest of the site as part of the general area investigation. Analytical data for these wells are presented in Tables B-6, B-7, and B-8, located in the Creek Sector B portion of this report. Several organic contaminants were detected at elevated levels in well G107. These include chlorophenol, chlorobenzene, dichlorophenol, dichlorobenzene, and PCBs. PCBs were also detected in samples collected from well G106. Both of these wells showed concentrations of heavy metals; specifically arsenic, barium, copper, lead, and manganese, which exceeded IEPA water quality standards. Phosphorus also exceeded the standards in both wells. Wells G101 and G104 showed little evidence of contamination although trace levels of PCBs were found in G101. Preliminary surveillance in November, 1985 at Site G showed wells G101, G104, and G107 to be intact. Well G106 was not located, and is suspected to have been destroyed.

In order to determine the vertical distribution of contaminants in the area, the IEPA collected subsurface soil samples at the locations of wells G106 and G107. Analytical data from these samples is shown in Table G-1. High levels of metals and phosphorus were detected in all samples. Trace levels of PCBs were found to a depth of 13 feet at G106. A quantified level (0.62 ppm) of PCBs was found at a depth of two feet in the location of G107, but PCBs were not detected in deeper samples. In October, 1984, IEPA collected three soil samples



0 100 500FEET  
SCALE

LEGEND  
G106 IEPA MONITORING WELL  
WS-1 IEPA WASTE SAMPLING LOCATION

FIGURE G-1  
DEAD CREEK SITE AREA G WITH SAMPLE LOCATIONS

TABLE G-1: ANALYSIS OF SUBSURFACE SOIL SAMPLES  
FROM SITE G (COLLECTED BY IEPA IN 1980)

ANALYTES	SAMPLE LOCATION AND DEPTH													
	G106								G107					
	7.5'-9.0'	10'-11.5'	12.5'-13'	15.5'-17'	18'-19.5'	20'-21.5'	30'-31.5'	0.5'-2'	5'-6.5'	10.5'-12'	15.5'-17'	18'-19.5'	20.5'-22'	25.5'-27'
Copper	140	90	59	54	56	28	14	91	53					
Iron	12,600	12,300	10,400	9,700	13,600	5,700	4,700	21,200	21,900					
Lead	15	11	8	9	12	3	6	170	49					
Nickel	36	21	11	43	21	8	19	37	39					
Phosphorus	582	475	383	391	540	249	183	1340	681					
Zinc	183	53	36	43	49	29	-	370	313					
PCBs	*	*	*	-	-	-	-	0.62	-					

NOTE: All results in ppm  
Blanks indicate parameter not analyzed  
- below detection limits  
\* detected but not quantified (trace)

at Site G from a pit in the northeast corner. Analyses of these samples are presented in Table G-2. Elevated levels of heavy metals were found in all samples, as were various organic contaminants. PCBs were detected in sample WS-3, but not in the other two samples. Sample WS-1 showed the highest degree of organic contamination. Organics detected in this sample include dimethyl phenanthrene, phenyl indene, pyrene, trimethyl phenanthrene, and aliphatic hydrocarbons.

Data from additional samples taken adjacent to Site G in Dead Creek are addressed in the narrative for Creek Sector B. Site G may be a source of contamination in Dead Creek; however, since the hydrology in the area is not well-defined, this cannot presently be determined.

A geophysical investigation, including flux-gate magnetometry and electromagnetics (EM), was completed at Site G in December, 1985 as part of the Dead Creek RI/FS project. A survey grid with dimensions of 440 by 600 feet was laid out using a compass and tape measure. Because of the large amount of scrap metal scattered about the surface of Site G, instruments were calibrated in off-site areas. The magnetometer survey was subcontracted to Technos, Inc. of Miami, Florida.

The magnetometer survey at Site G showed that a major magnetic anomaly covers most of the northern portion of the site. Several smaller anomalies were found to the north of the large depression in the southwest corner of Site G. Survey lines run south of the fill area in a cultivated field showed no magnetic anomalies above background conditions. The mounds in the northwest corner of the site showed smaller anomalies at the surface and larger anomalies for deeper readings, indicating significant quantities of buried metals.

An EM survey was done using the same grid as for the magnetometer investigation. Shallow soundings indicated three areas showing relatively high induced polarity anomalies. These include a 50 feet by 20

TABLE G-2: ANALYSIS OF WASTE SAMPLES FROM OILY PIT AT SITE G  
(COLLECTED BY IEPA 10-1-84)

PARAMETER ANALYZED	SAMPLE NUMBER		
	WS-1	WS-2	WS-3
Arsenic	0.3	0.6	97
Cadmium	0.1	0.8	16.8
Copper	101.4	509	712
Chromium	24.4	27.2	30
Iron	106	151	6025
Lead	26.6	52.1	337
Manganese	-	-	9.9
Mercury	0.36	0.46	1.99
Zinc	101.4	339	104,100
Aliphatic Hydrocarbons	19,200	5.23	-
Chlorobenzene	-	0.58	-
Dimethyl phenanthrene	3100	-	-
Phenyl indene	320	-	-
Pyrene	610	-	-
Trimethyl Phenanthrene	1400	-	-
PCBs	-	-	18
Other Organics (not specified)	1200	0.4	4070

NOTE: All results in ppm  
- indicates below detection limits



feet area in the northeast corner, a 150 feet by 100 feet area in the east-central portion, and the entire mounded area along the west perimeter of the site. Deep soundings (approximately 10 to 15 meters in depth) indicated a significant anomaly covers most of the northern portion of the site. Three negative anomalies were recorded in the center of the fill area, possibly indicating higher, off-scale instrument readings or the presence of significant quantities non-conductive material such as concrete. The EM survey also showed anomalies trending off-site in the northwest corner, indicating the possibility that the actual filled area extends north under Queeny Avenue.

#### Data Assessment and Recommendations

Activities proposed at Site G for the Dead Creek Project include collecting 10 subsurface and 40 surface soil samples, and water samples from IEPA wells located on or near the site. A soil gas monitoring survey is also scheduled for Site G, and will be conducted in conjunction with ambient air monitoring at the site. Additional investigation is necessary to adequately characterize the site and to provide an adequate data base for conducting the feasibility study. Existing monitoring wells in the vicinity of the site need to be refurbished prior to sampling. Additional wells need to be installed around the site to determine if Site G is contributing to groundwater pollution in the area. Additional borings and subsurface sampling (alternatively excavation of test pits and sampling) in anomalous areas encountered during the geophysical study would be needed to provide additional information concerning depth of fill, waste characteristics, and past operation. This additional information will allow more specific evaluation of remedial alternatives. The hydrology of Site G in relation to Dead Creek also needs to be assessed to determine if the site is a source of pollution observed in the creek. This assessment would include collecting the following data: (1) Ground water elevations from a minimum of three locations on each side of the creek, (2) Surface water and creek bed elevations from three locations in the creek, and (3) Infiltration rates for the

alluvium and the Henry formation at Site G. The above data, in conjunction with the stratigraphic columns from borings in the creek bed (St. John Report), would provide sufficient information to determine the relationship, if any, between ground water and the surface hydrology of the creek.

It was previously noted that IEPA well G106 was not located during a preliminary survey. Further attempts should be made to locate this well and to repair it if it is feasible to do so. The condition of all IEPA wells should be assessed, and reconstruction or redevelopment should be performed in accordance with the assessment.